

IN THE CLAIMS:

Please note that all claims currently pending and under consideration in the referenced application are shown below, in clean form, for clarity.

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1. (Three Times Amended) A semiconductor assembly comprising:
a substrate having a surface;
a semiconductor die having a plurality of edges, having an active surface having a plurality of bond pads thereon located adjacent at least two edges of the plurality of edges, and having a back side surface, the semiconductor die having at least a portion of the back side surface adhesively attached to at least a portion of the surface of the substrate;
a gel elastomer contacting at least a portion of the active surface of the semiconductor die;
a heat sink attached to the gel elastomer; and
an encapsulation material covering a portion of the surface of the substrate, the plurality of edges of the semiconductor die, and at least one bond pad of the plurality of bond pads located adjacent at least two edges of the semiconductor die, wherein the encapsulation material excludes covering the heat sink.

2. The semiconductor assembly of claim 1, wherein the heat sink includes a plurality of fins thereon.

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cont

3. (Previously Amended) A semiconductor assembly comprising:
a substrate having a plurality of circuits on a portion of a surface thereof;
a semiconductor die having a plurality of bond pads located on an active surface thereof and having a back side surface;
a plurality of solder balls connecting at least a portion of the plurality of bond pads of the semiconductor die to at least a portion of the plurality of circuits of the substrate;

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a gel elastomer contacting at least a portion of the back side surface of the semiconductor die,
wherein the gel elastomer is compliant, adhesive, and filled with a thermally conductive
material; and
a heat sink cap covering the gel elastomer, the semiconductor die, the plurality of solder balls,
and a portion of the substrate, the heat sink cap contacting at least a portion of the gel
elastomer.

4. The semiconductor assembly of claim 3, wherein the heat sink cap includes a
plurality of fins thereon.

5. (Previously Amended) The semiconductor assembly of claim 3, wherein the gel
elastomer includes a cross-linked silicone.

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6. (Three Times Amended) A semiconductor assembly comprising:
a substrate having a plurality of electrical connections on a portion of a surface thereof;
at least one semiconductor die having a plurality of bond pads on a first portion of an active
surface thereof and having a back side surface, a portion of the back side surface
adhesively attached to a portion of the surface of the substrate;
a plurality of wire bonds connecting at least a portion of the plurality of bond pads of the at least
one semiconductor die to at least a portion of the plurality of electrical connections of the
substrate;
a gel elastomer contacting a second portion of the active surface of the at least one semiconductor
die;
a heat sink attached to the gel elastomer; and
an encapsulant material covering a portion of the surface of the substrate, the plurality of bond
pads on the active surface of the at least one semiconductor die, a portion of the active

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cancel surface of the at least one semiconductor die, and the plurality of wire bonds, wherein the encapsulation material excludes covering the heat sink.

7. The semiconductor assembly of claim 6, wherein the heat sink includes a plurality of fins thereon.

A5 8. (Previously Twice Amended) A semiconductor assembly comprising:
a substrate having a surface having a plurality of circuits on a portion thereof;
a semiconductor die having a plurality of bond pads located on a first portion of an active surface thereof and having a back side surface;
a plurality of solder balls connecting at least a portion of the plurality of bond pads of the semiconductor die to at least a portion of the plurality of circuits of the substrate;
a gel elastomer contacting a portion of the back side surface of the semiconductor die, wherein the gel elastomer is a cross-linked silicon gel, compliant, adhesive, and filled with a thermally conductive material; and
a heat sink cap having a portion thereof in contact with a portion of the gel elastomer, the heat sink cap covering the gel elastomer, the semiconductor die, the plurality of solder balls, and at least a portion of the substrate.

9. The semiconductor assembly of claim 8, wherein the heat sink cap includes a plurality of fins thereon.